

DATE: December 15, 2015

TO: R6 UDO

FROM: R6 DIVER

SUBJECT: DIVE REPORT (Event 01):
December 9-10, 2015
San Jacinto Waste Pits (SJWP) SF Site, Harris Co. (Channelview), TX

BACKGROUND

The San Jacinto River Waste Pit Site history has been documented in several documents prepared for, submitted to, and approved by the EPA, which will not all be repeated here. In brief, paper mill wastes were disposed in impoundments about 14 acres in size at the site in the 1960's resulting dioxin and furan contamination in the adjacent waterbody of the San Jacinto River. The impoundments/waste pits are situated on a 20 acre parcel immediately north of Interstate Highway 10 (I-10) at the I-10 bridge over I-10 and on the west bank of the river.

Pursuant to an EPA-issued Unilateral Administrative Order, International Paper Company (IPC) undertook a Time Critical Removal Action (TCRA). As a central component of that action, IPC and MIMC and McGinnes Industrial Maintenance Corporation (MIMC) implemented action to stabilize the waste pits and to install the TCRA Cap. The original 1966 boundaries of the northern impoundments/waste pits and impacted area extend into the current basin of the San Jacinto River, and thus a portion of the cap is underwater in depths extending to a maximum of approximately 16 feet. The TCRA Cap is designed to prevent the migration of dioxins and furans from the historic boundaries of the northern impoundment into the San Jacinto River and its sediments.

INTRODUCTION

This report covers the first of four anticipated, interrelated diving operations at the San Jacinto River Waste Pits Superfund Site in Harris County, Texas where Interstate Highway 10 (I-10) bridge crosses the San Jacinto River. This first diving operation is to serve two primary purposes: (1) investigate the physical integrity of the multilayer impermeable cap installed over waste pits as part of the Time Critical Removal Action (TCRA); hereinafter referred to as the "TCRA Cap", and (2) to implement and validate procedures that will be used for the installation and retrieval of TCRA Cap pore water sampling devices during the full investigation of ongoing performance of the TCRA Cap (dive operations 2 through 4).

PURPOSE

TCRA Cap installation was completed in July 2011. The current investigation (and the portion assisted by the U.S. EPA dive teams from Region 6 and ERT) is designed to safely assess ongoing TCRA Cap integrity and performance as measured by the continued physical integrity of the cap and its boundaries and also the absence of detectable migration of dioxin and furans from the waste pit beneath the Cap and into the San Jacinto River.

Divers will be used to inspect TCRA Cap integrity, by visual and tactile means, particularly at the Cap perimeter to determine if the hard armor (gravel and stones placed over the cap) are remaining in place and if the boundaries are maintaining integrity as installed. Diver observations will be supplemented by GPS coordinates and depth measurements, and by side Dual-Frequency Imaging Sonar or Acoustic Camera. Visibility is anticipated to be very poor, but an attempt will be made to collect photographic images.

The entire investigation will entail placement and retrieval of Solid Phase Micro-Extraction (SPME) sampling devices designed to passively collect dioxin and furan pollutants in the pore water of the interstitial spaces of the hard armor cover of the Cap. This first diving operation will focus simply on verifying effective techniques for installing, securing, and then retrieving such sampling devices.

ACTIVITIES

Tuesday 12/8/15. Members of the EPA Dive Team; Alan Humphrey (ERT), Brandi Todd (R6), Valmichael Leos (R6), Bill Luthans (R6), and Nick Gannon (R6) mobilized to Houston, TX and acquired supplies for on-site activities. . The Dive Team met briefly to discuss logistics for the following day's activities.

Wednesday, 12/9/15. EPA divers, RPM, PRPs and BESI personnel mobilized to the Riverside Inn Marina located near the site. A 20-foot aluminum boat was launched by the BESI. Following equipment loading, a Health and Safety meeting, and travel via boat to the site (approx.1 mile), primary and backup diver preparations began on board. All dive activities followed procedures outlined in the San Jacinto Waste Pit Dive Plan and EPA Dive Safety Plan. At 12:25 the first R6 tethered diver entered the water to begin the Cap inspection. The diver, directed by topside staff, descended to the riverbed and reported presence or absence of rock, approximate depth of silt, and detectable slope. The diver utilized a portable T-bar to assess depth of silt and presence or absence of rock. Several GPS locations and map objections were noted.

Thursday, 12/10/15. Again, EPA divers, RPM, PRPs and BESI personnel mobilized to the Riverside Inn Marina. In addition to tethered diving operations, a side Dual-Frequency Imaging Sonar and a calibrated river bed probe were utilized from the boat to assess condition of the Cap. Thursday operations included the testing of equipment and procedures for future Solid Phase Micro-Extraction (SPME) sampler placements. A R6 diver, equipped for shallow water wading and supported by Jon boat, accomplished the shallow water placement and a tethered diver accomplished the deep water sampler placement, marking, and retrieval.

Post dive activities included de-con, equipment storage and shipping. Staff demobilized to Dallas, New Jersey and Houston.

OBSERVATIONS

Areas of the Cap inspected by the dive team are broken into areas A, B, and C for ease of discussion (see Map 1).

Area A

Location A.1 - On Wednesday, 12/9, the tethered diver entered the river at location A.1 on foot in an attempt to walk into deeper water. The diver was not able to walk because he sank into the silty bottom in the area immediately adjacent to the boat. Hard rock was not encountered at the river bottom in the immediate area of boat and diver. Diver was relocated to A.2 On Thursday, 12/10, the team returned back to this location to perform further investigation. In order to better define the area where rock was not present, a calibrated pole operated from the boat was used to determine the presence/absence of rock at 4 GPS coordinates (see Map 2).

GPS Coordinate 1 – Rock not present to a depth of at least 6 ft

GPS Coordinate 2 – Rock present

GPS Coordinate 3 – Rock not present to a depth of at least 6 ft

GPS Coordinate 4 – Rock Present

Based on the 4 coordinates and additional probing, the area suspected of lacking rock is approximately 25 sq.ft..

Imaging sonar was utilized in this area in an attempt to visualize the area lacking rock. This area was not identifiable via sonar, but other areas of interest were identified based on anomalies seen in the sonar images. A tethered diver was used to physically inspect the anomalies. Rock was found to be present throughout these areas.

Location A.2 – Diver noted a pavement-like surface beneath a silty layer at this location and a slope of approximately 30°.

Location A.3 – Diver noted a pavement-like surface beneath a silty layer at this location and a very slight slope.

Summary Area A – Diver noted a pavement-like floor beneath a silty layer at all location except adjacent to A.1. Diver noted a slope of approximately 30° until the edge of the cap where the slope flattened out. Silt depth increased at the bottom (or edge) of the cap. Depth of silt was approximately 24" near the edge of the cap.

Area B

Location B.1 – Diver noted that this location is at the edge of the cap. A transition zone approximately 5-6 ft wide is indicative of the cap edge. This observation supports current maps of the site identifying this location as the edge of the cap.

Locations B.2-B.3 – Diver noted a rocky floor at these two shallow locations.

Summary Area B –

Area C

Location C.1 and C.2 – Diver located the edge of the cap in this area. This observation supports current maps of the site identifying this location as the edge of the cap.

SAFETY CONCERNS and RECOMMENDATIONS

At the completion of this project, a review of the procedures and equipment was conducted. There were no malfunctions of the dive gear to report. This includes diver full face masks, imaging sonar, dry suits, and hard wired communications gear. The tender, who also served as the standby diver, was not required to enter the water to assist the primary diver.

Day 1 - Difficulties included shallow water, zero visibility, a soft bottom, river currents, air pollution, and an unstable boat ladder.

Day 2 - Difficulties included mobility and stability during shallow water wading, tethered T-bar operation, and buoy handling during sampler insertion.

The dive ladder was replaced on the second day after access difficulties. OTC work boots were employed to assist the wading diver over uneven Cap surfaces. It is recommended that additional balance/stability assists are used during future sampler deployment events. Communication with barge traffic control will be needed for work on the industrial traffic side of the site.

REFERENCES

EPA R6 Dive Safety Plan: San Jacinto River Waste Pits Superfund Site, Harris County
(Channelview) TX (12/08 – 12/11/15)

ATTACHMENTS

EPA Dive Tender's Field Log
Map 1
Map 2
Photos and sonar images